circulating in the blood; for these are the same for all parts, and the actions of hormones in the blood-stream presuppose the existence of the specialized organs.

If, then, the liver is to be permeated in every part by capillaries, its specialized cells must have the power of so influencing some of the less specialized cells in their neighbourhood that these become capillary wall-cells and arrange themselves to form the multitude of fine tubes connecting arteries with veins. Let us grant this power as a feature of their specialization. But then we have to grant the same power to neurones and muscle-cells, and bone-cells, and to practically every kind of special tissue-cell; for all organs in proportion to their needs are similarly permeated by capillaries, and some also by ducts, by nerves, by plain muscle-fibres, by connective tissues of various kinds, all appropriately disposed.

How, then, account chemically, in terms of the differentiating influences from neighbouring specialized cells, for the fact that cells so differently specialized as the liver-cells, muscle-cells, and neurones, all alike work upon mesoderm cells so that they become the net-work of capillaries of just the required closeness and arrangement of meshes ?

One might go on in this way piling up the problems of spatial arrangement which remain for solution, if all the chemical specializations of cells, primarily through genes, secondarily through neighbourhood influences of other cells, be in principle granted as possible.

To all these most intricate problems of

spatial distribution of specialized cells are to be added the temporal problems, those of the due timing of the successive generations through which the primary specializations are supposed to be produced.